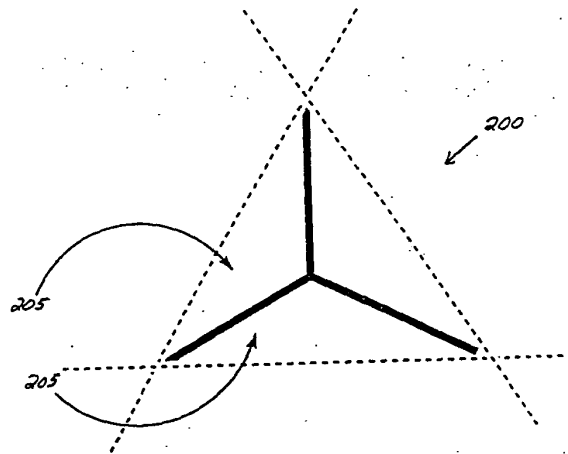
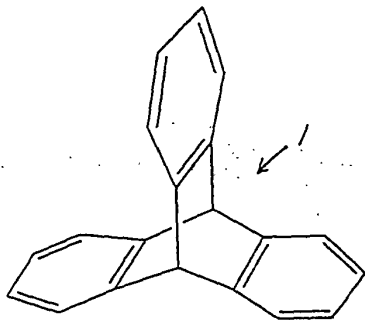


FIG. 1A
PRIOR ART



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09950560 0905E660

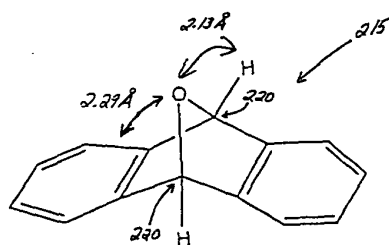
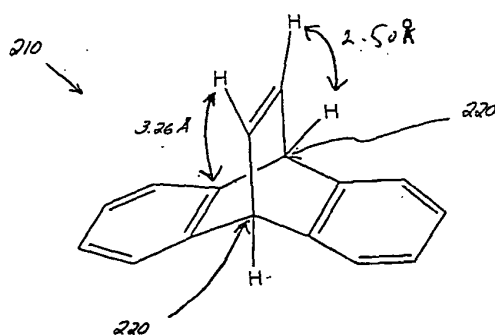
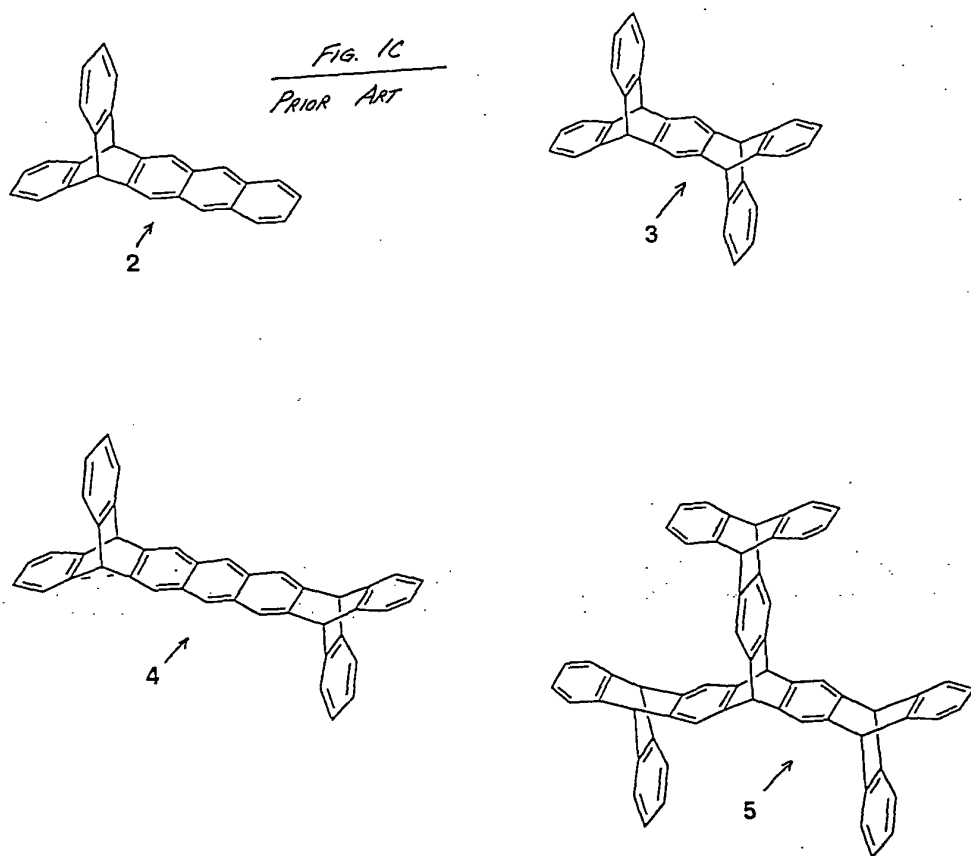


FIG. 1B

Prior Art



09/935,060 - 032902

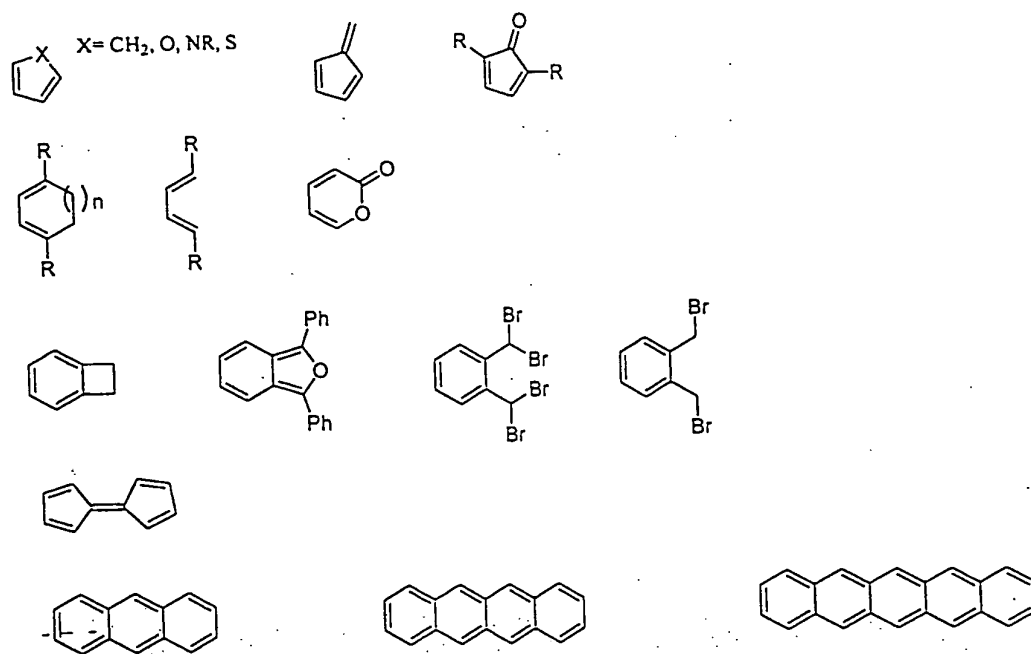
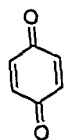


Fig. 1e



$X = \text{CH}_2, \text{C}=\text{O}, \text{O}, \text{NR}, \text{S}$



$X' = \text{Cl}, \text{Br}, \text{I}$

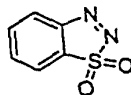
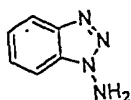
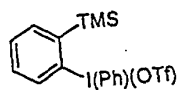
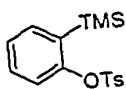
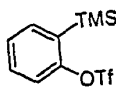
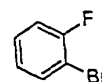
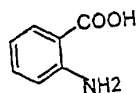
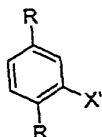


FIG. 1f

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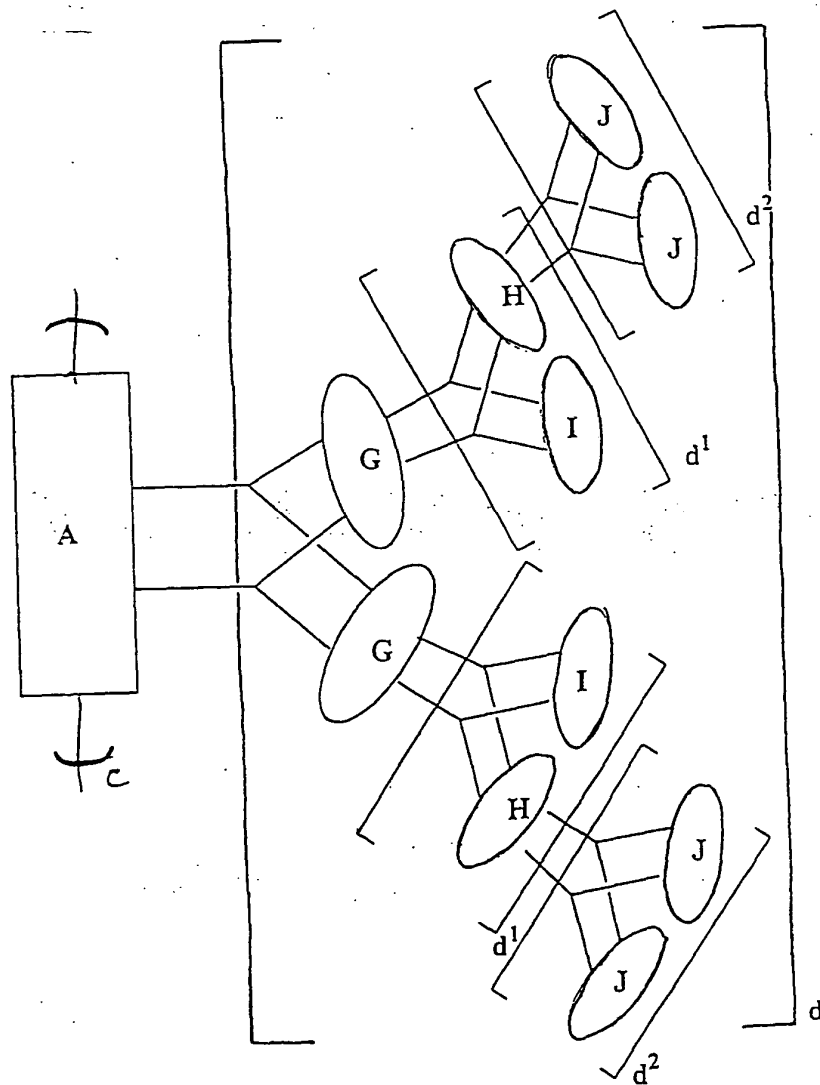
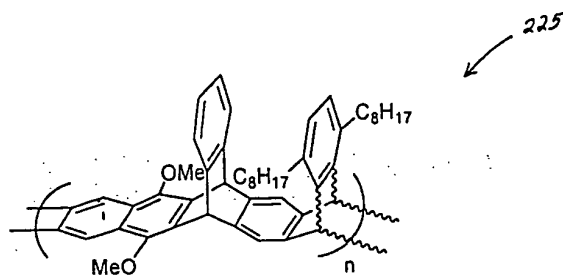


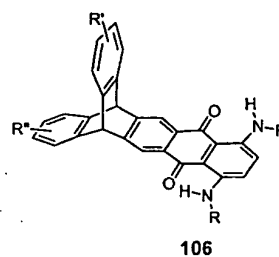
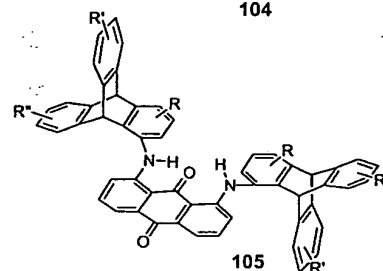
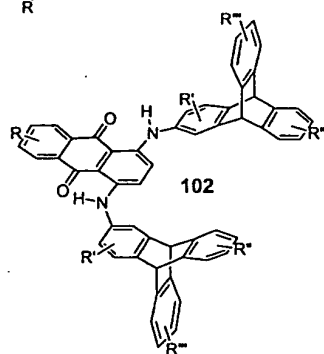
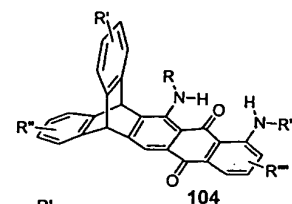
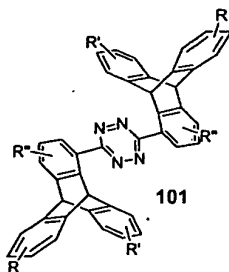
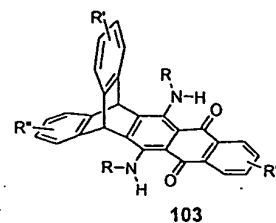
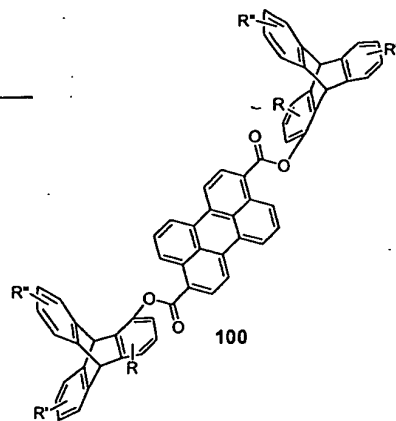
Fig. 1g

FIG. 1H



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Fig. 1J



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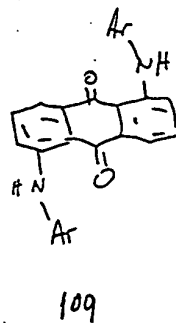
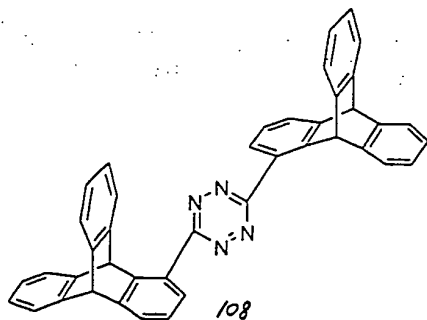
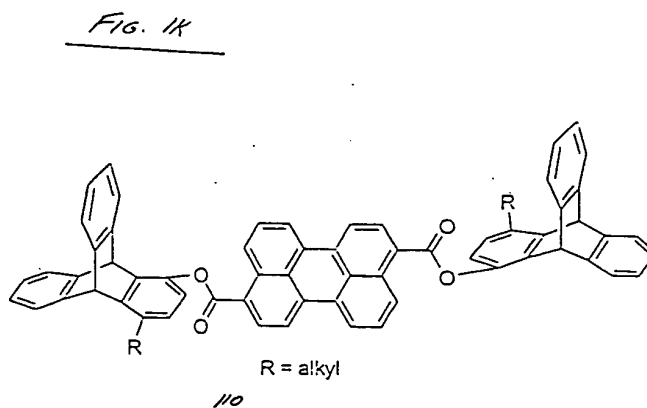
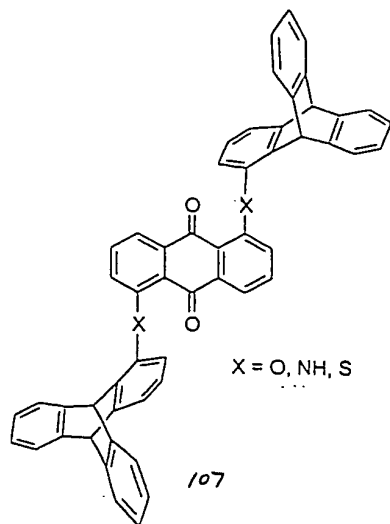
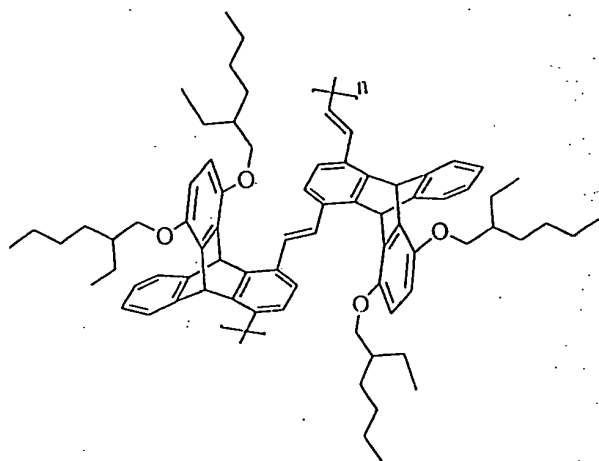
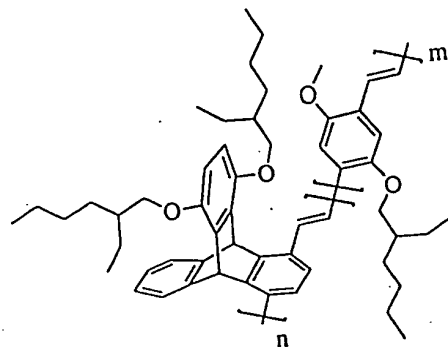


FIG. 12



///



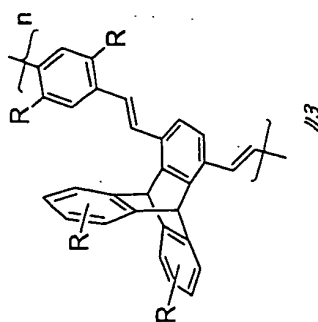
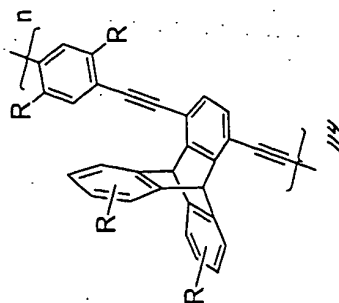
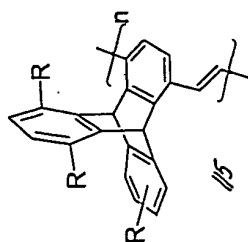
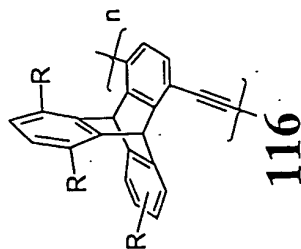
112

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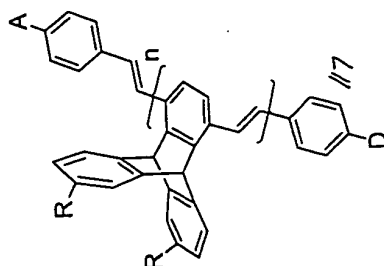
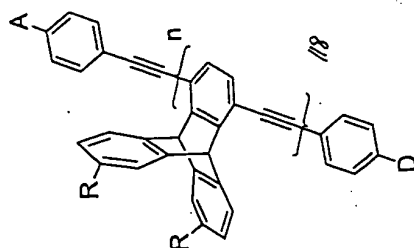
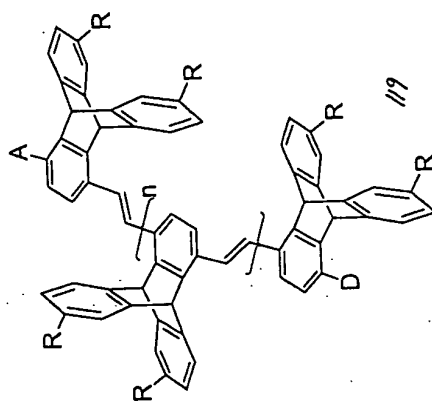
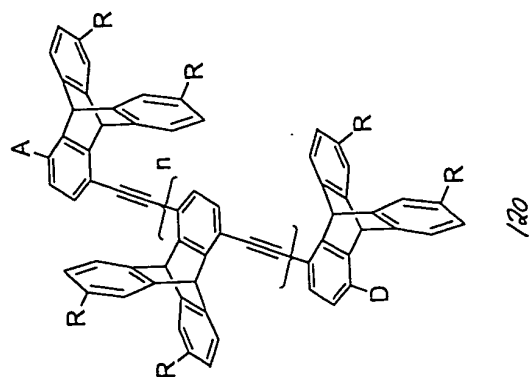
PATENT APPLICATION SERIAL NO.: 09/935,0
 CONFIRMATION NO.: 7755
 TITLE: Polymers with high internal free volume
 BY: Timothy M. Swager

Fig. 1M



$R = C_nH_{2n+1}, C_nF_{2n+1}, OC_nH_{2n+1}$

Fig. 1N



A = CN, C_nF_{2n+1} ,
 D = $N(C_nH_{2n+1})_2$, OC_nH_{2n+1} ,
 R = C_nH_{2n+1} , C_nF_{2n+1} , OC_nH_{2n+1}

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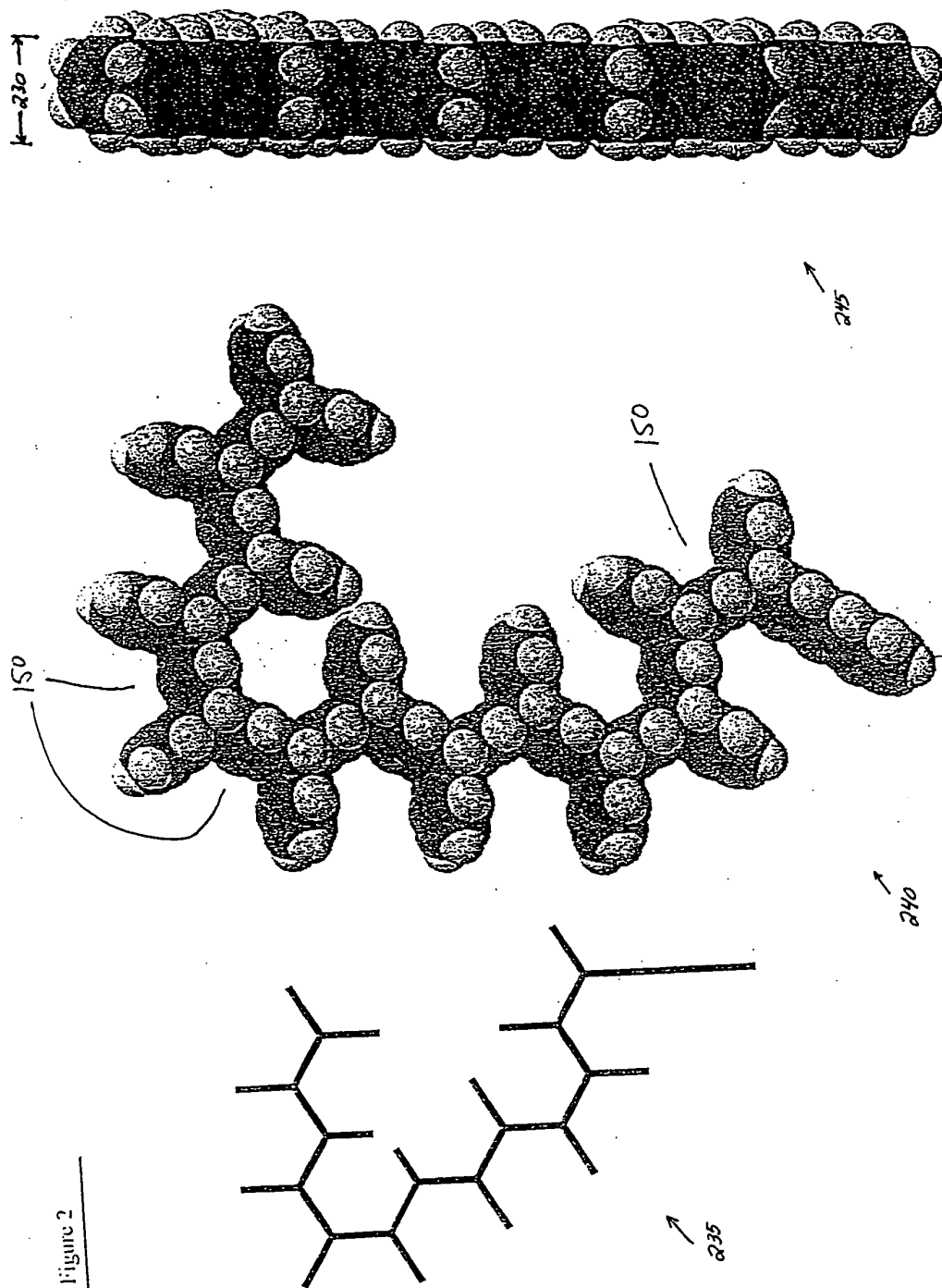


FIG. 2A

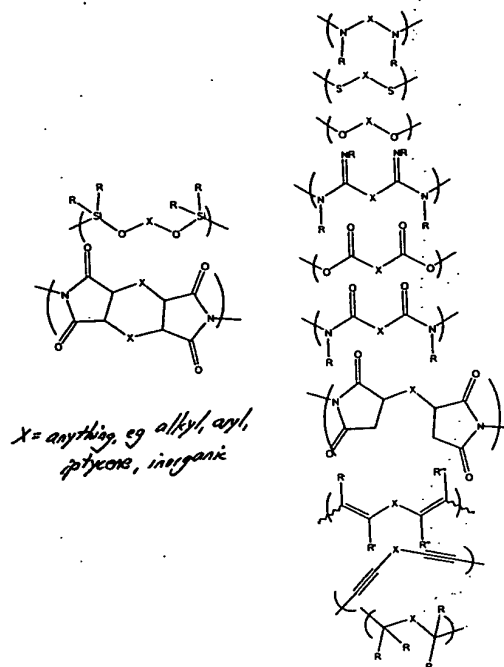
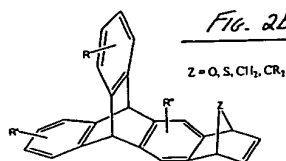


FIG. 2B



X or Y contains an ipitycene

FIG. 2C

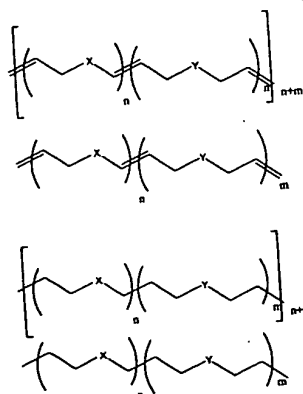
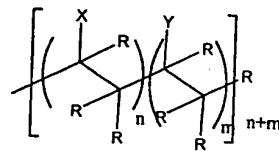
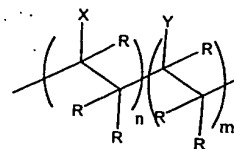


FIG. 2D



Where X = Y or X ≠ Y



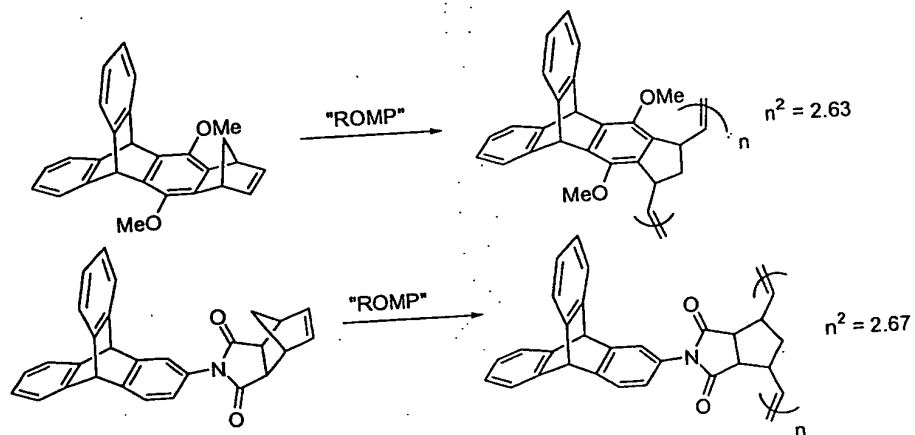
If X = Y, then polymer may be atactic,
isotactic or syndiotactic

If X ≠ Y, then each block may be atactic,
isotactic or syndiotactic

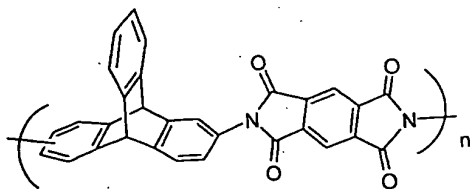
R = functionalized ipitycene

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FIG. 2E



Random co-polymer : $n^2 = 2.72$



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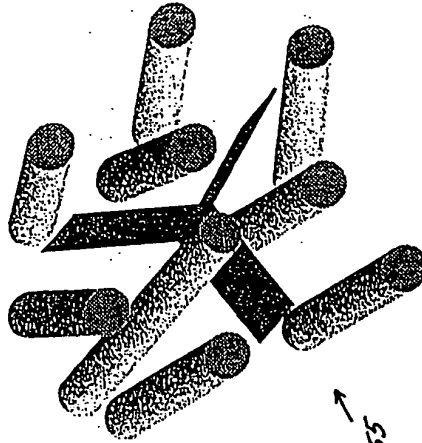
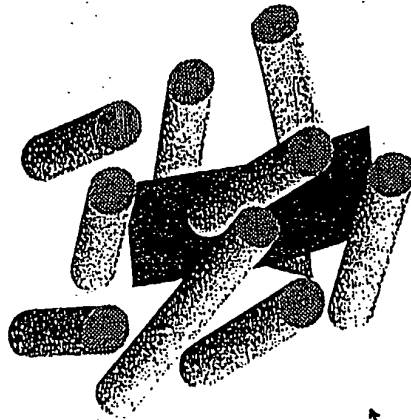


Fig. 3



09935060 0905E660

PATENT APPLICATION SERIAL NO.: 09/935,0

CONFIRMATION NO.: 7755

TITLE: Polymers with high internal free volume

BY: Timothy M. Swager

0993505660

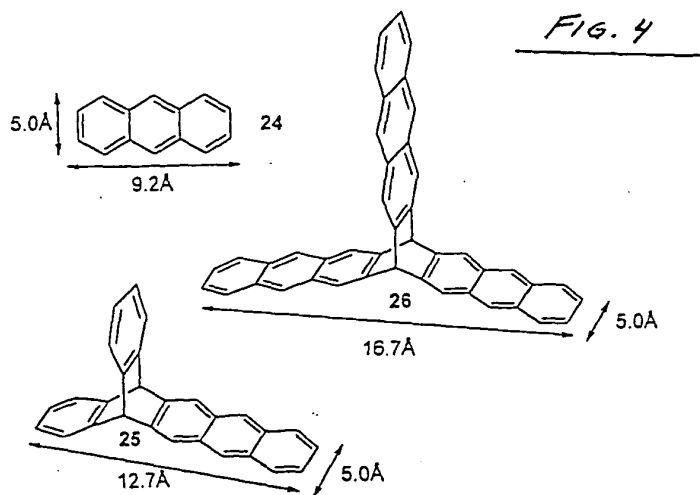


FIG. 5

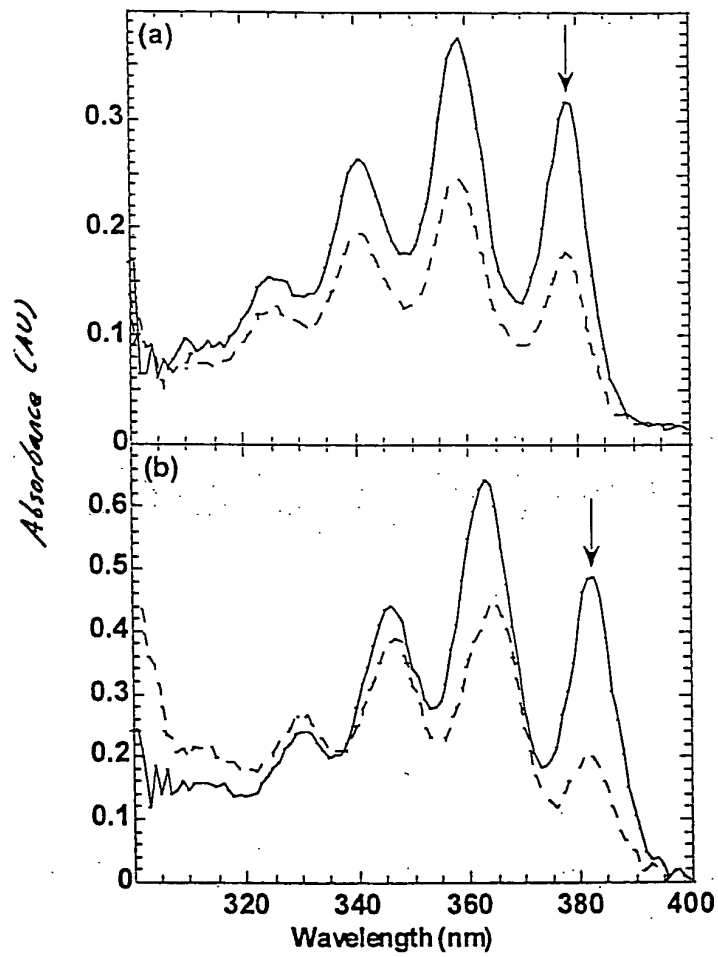
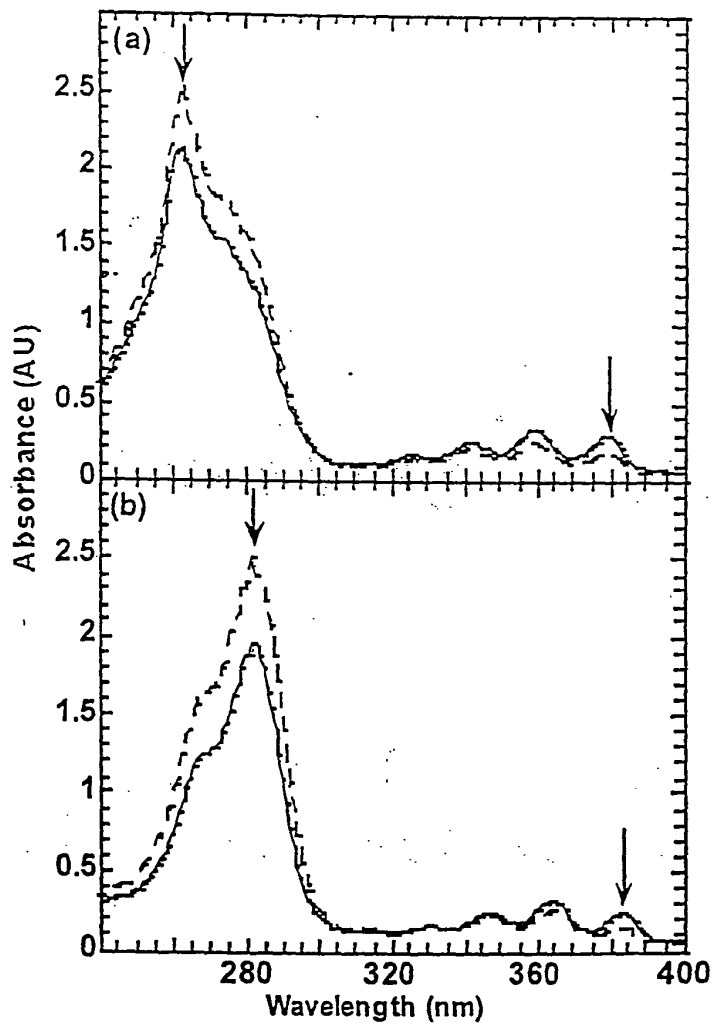


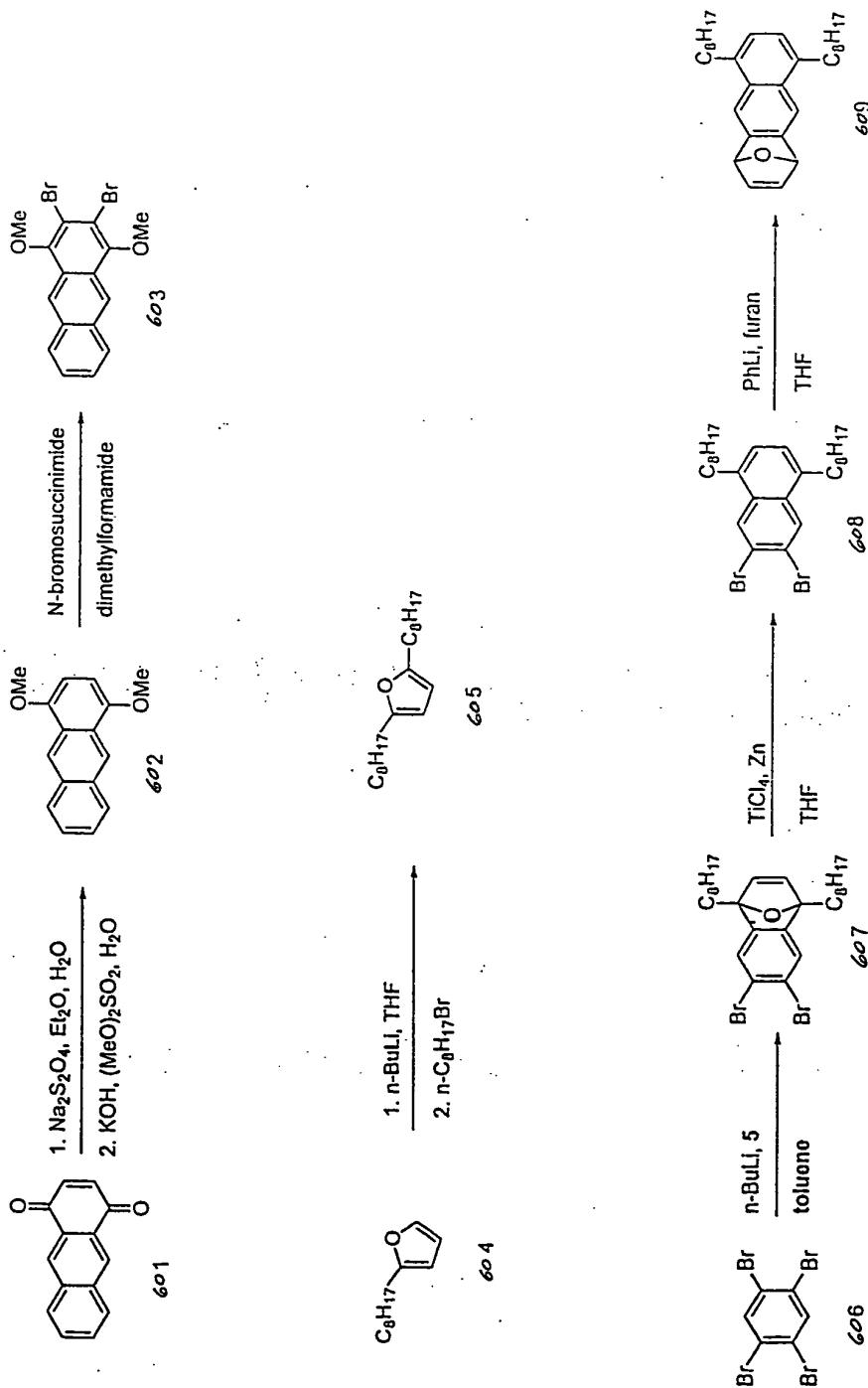
Fig. 6



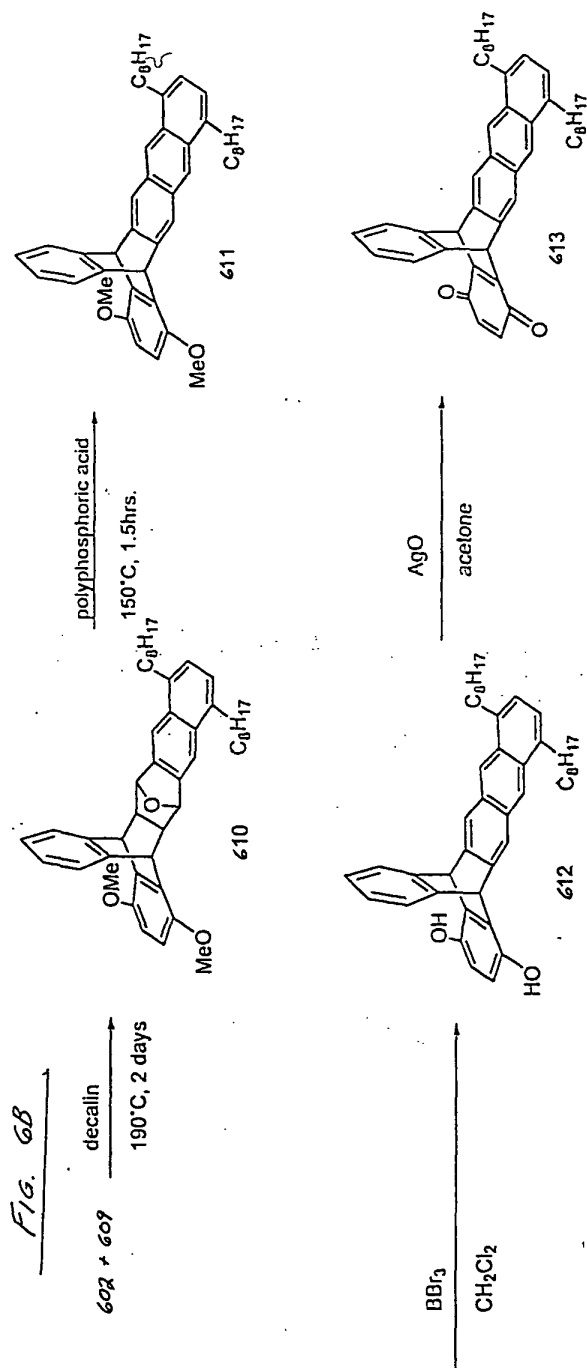
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Fig. 6A



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206220-0905660

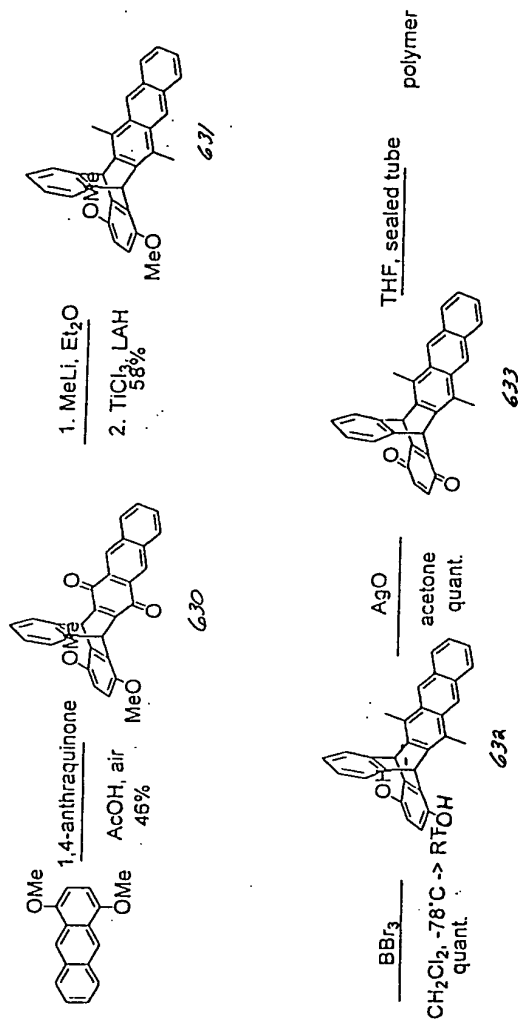


Fig. 6C

Questions **A**nswers **T**ips **E**xercises **S**tudies **R**eviews **C**onclusions

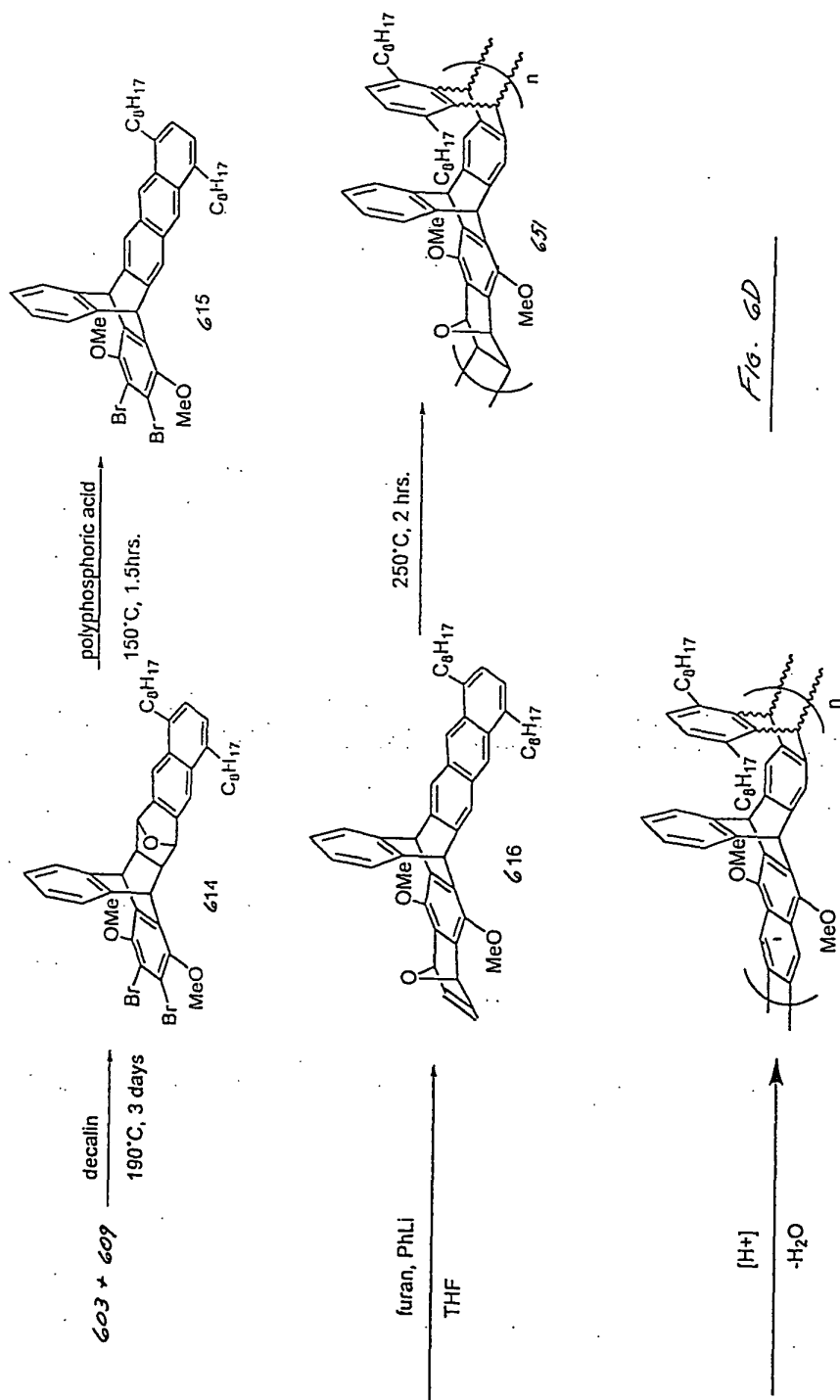
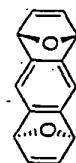
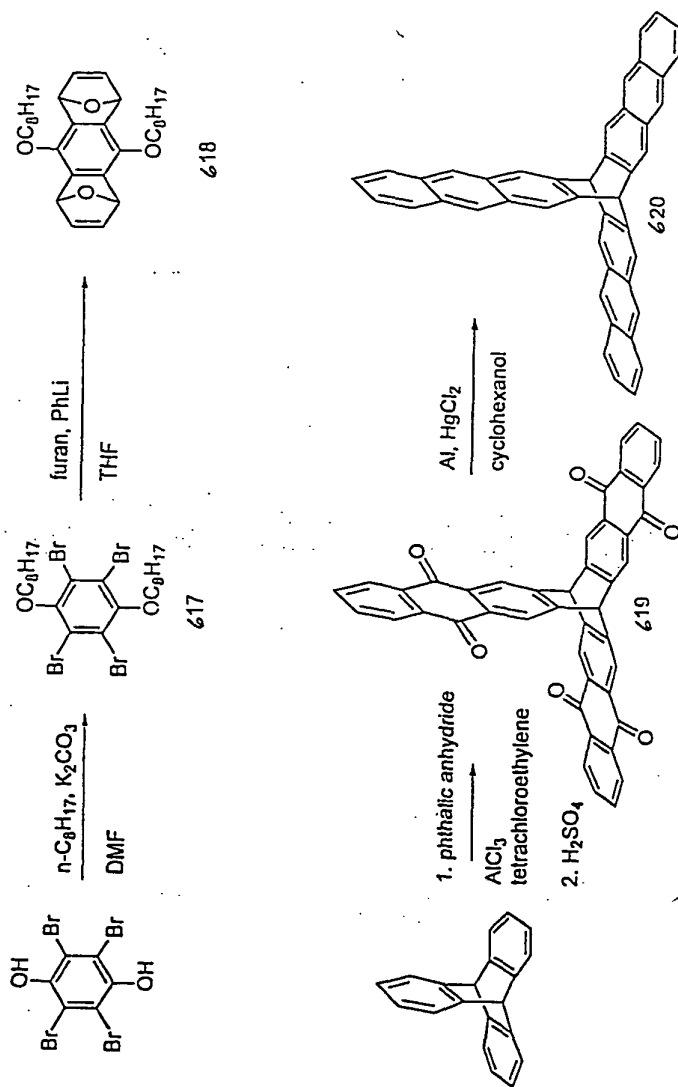


Fig. 6D

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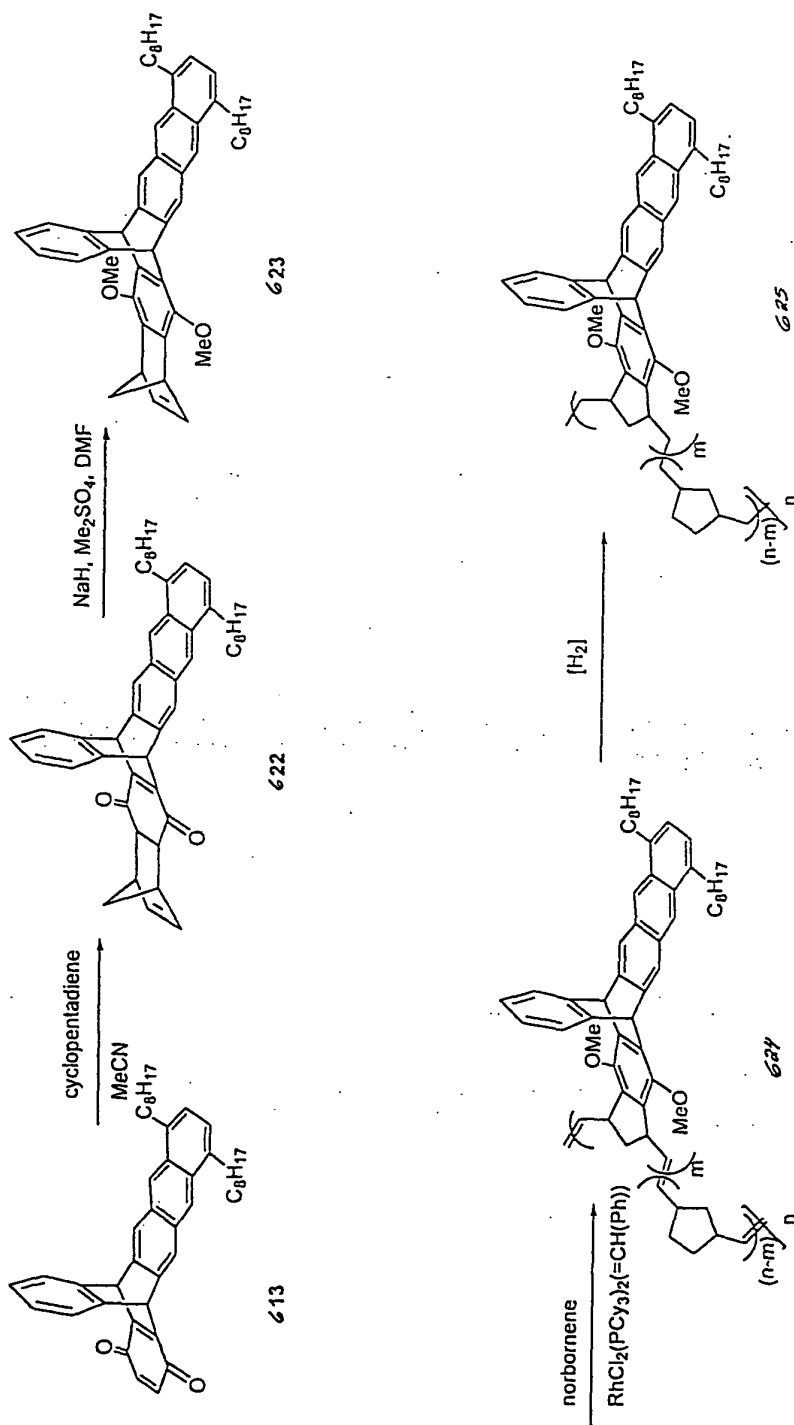
Fig. 6E



621

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Fig. 6f



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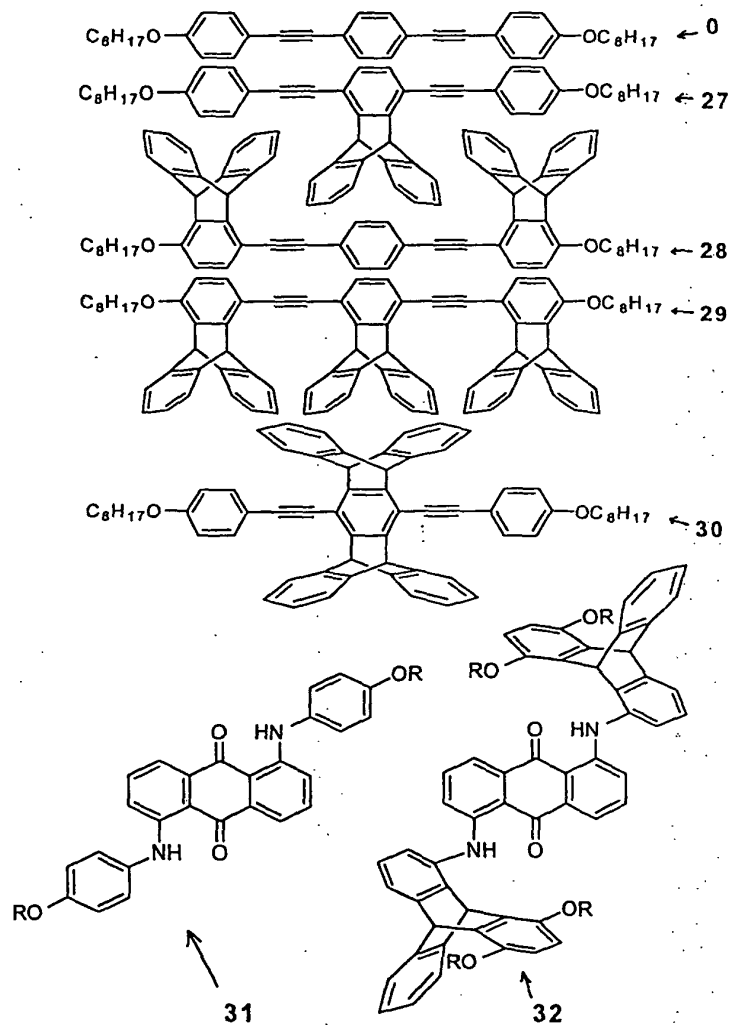
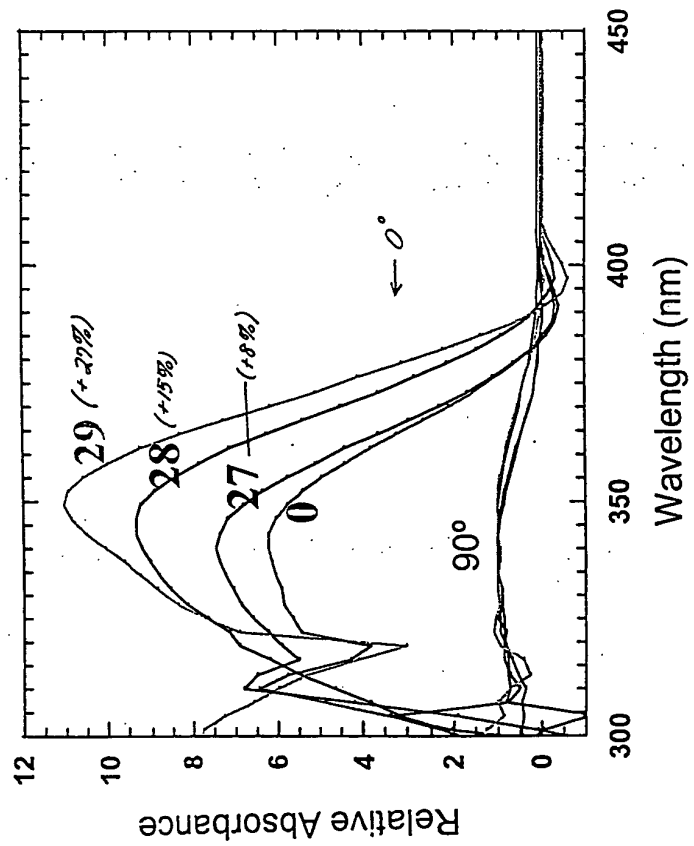


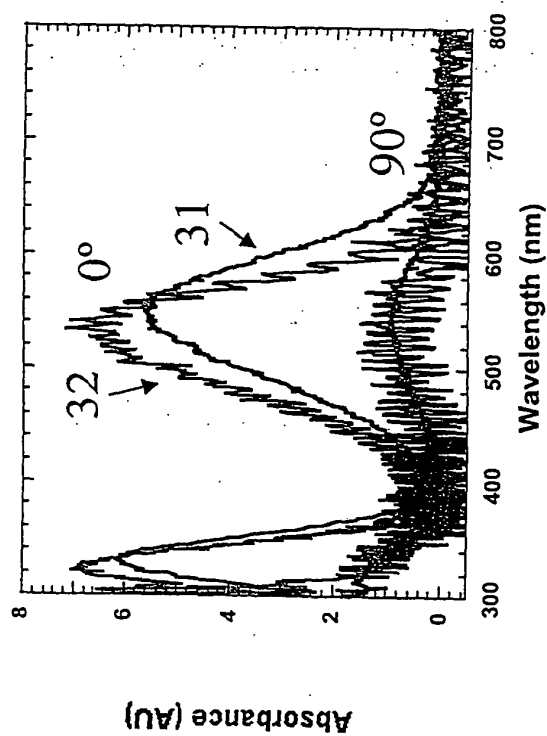
Figure 7. ($R = nC_8H_{17}$)

Figure 8.



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Figure 9



206220 " 0905E660

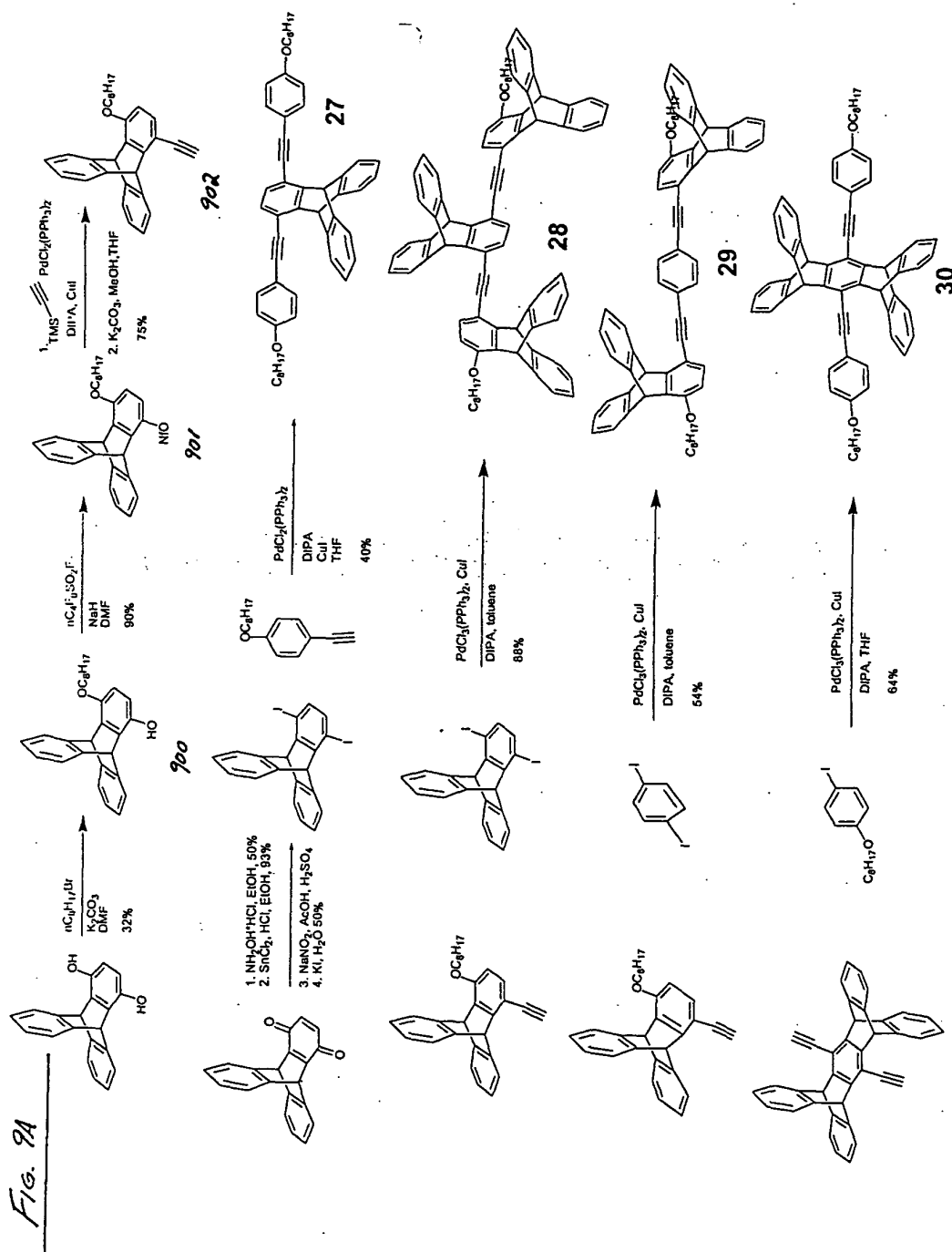
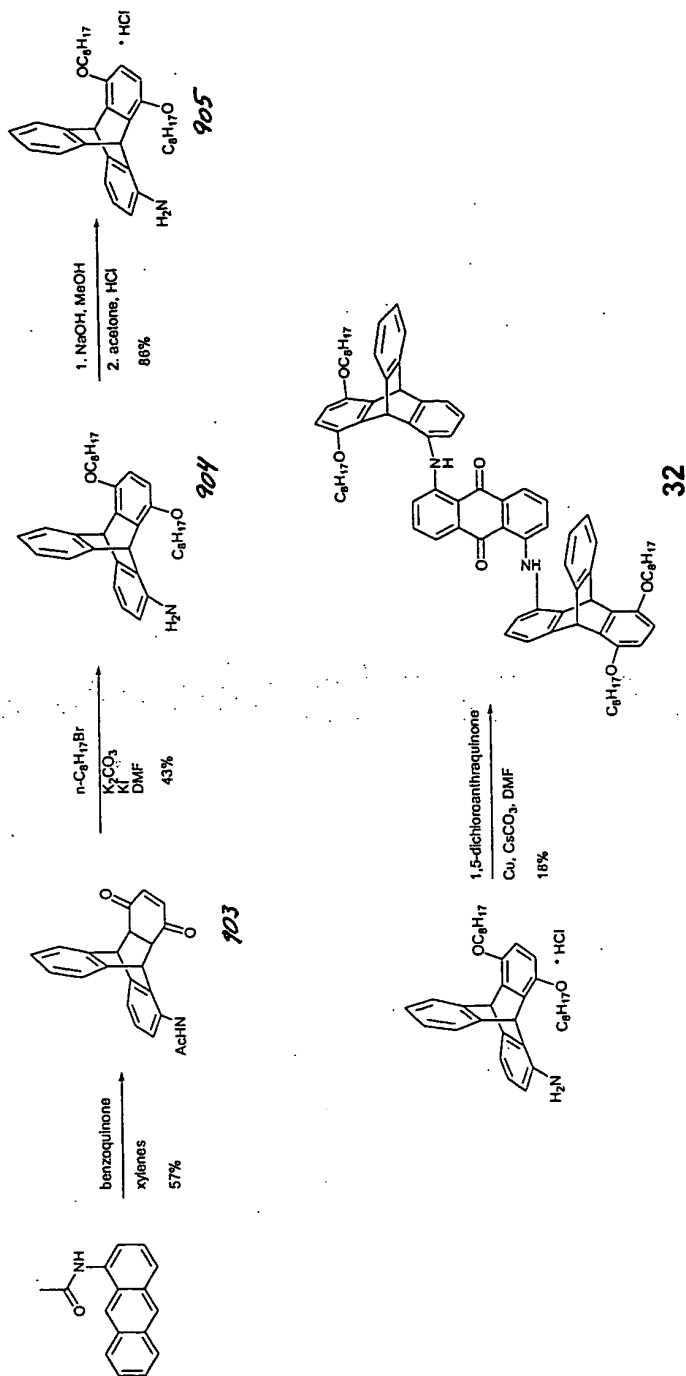


Fig. 9B

PATENT APPLICATION SERIAL NO.: 09/935,060
 CONFIRMATION NO.: 7755
 TITLE: Polymers with high internal free volume
 BY: Timothy M. Swager



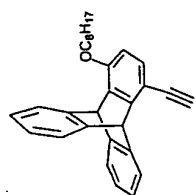
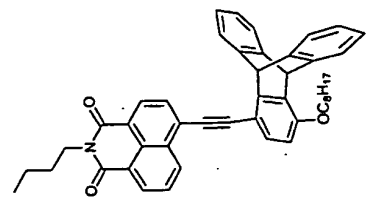
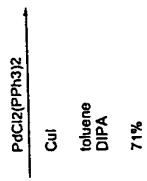
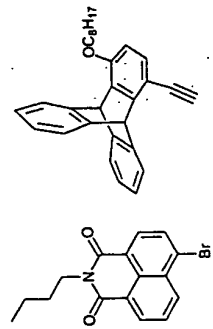
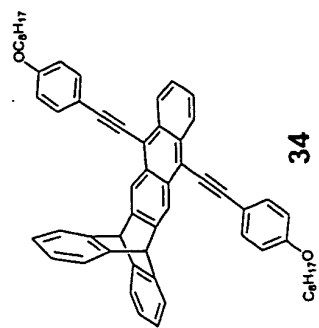
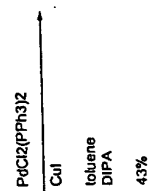
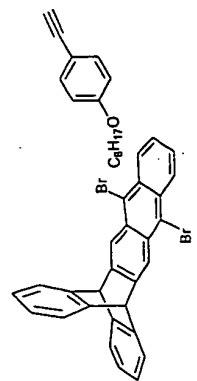
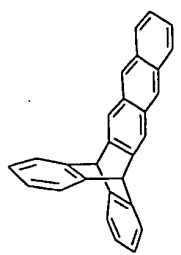
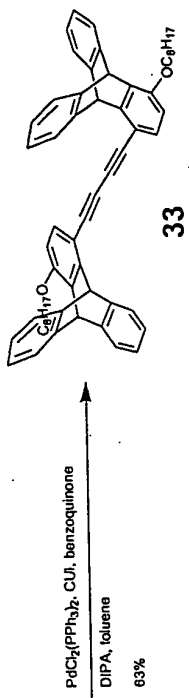


Fig. 9c



35

Fig. 9d

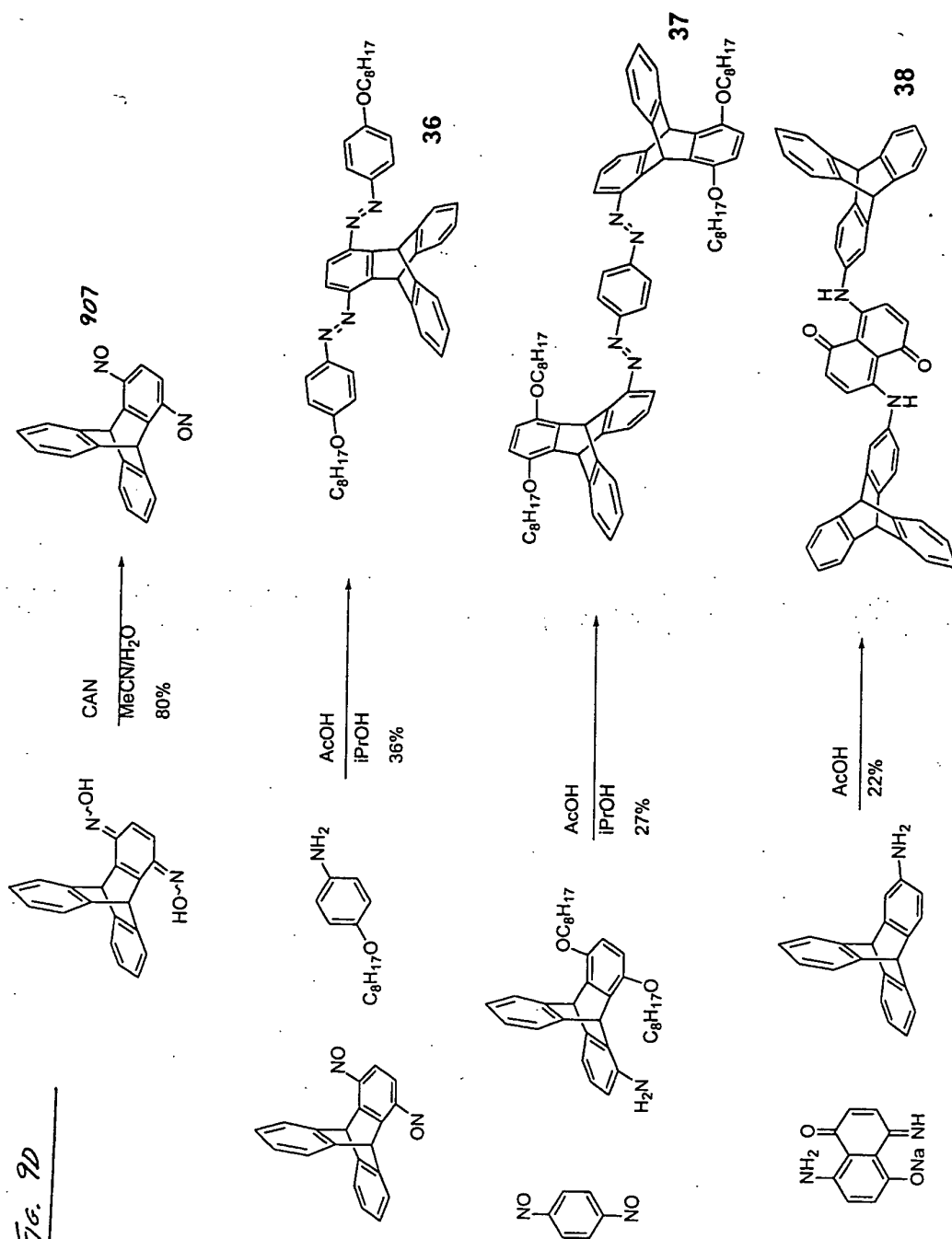


Fig. 9E

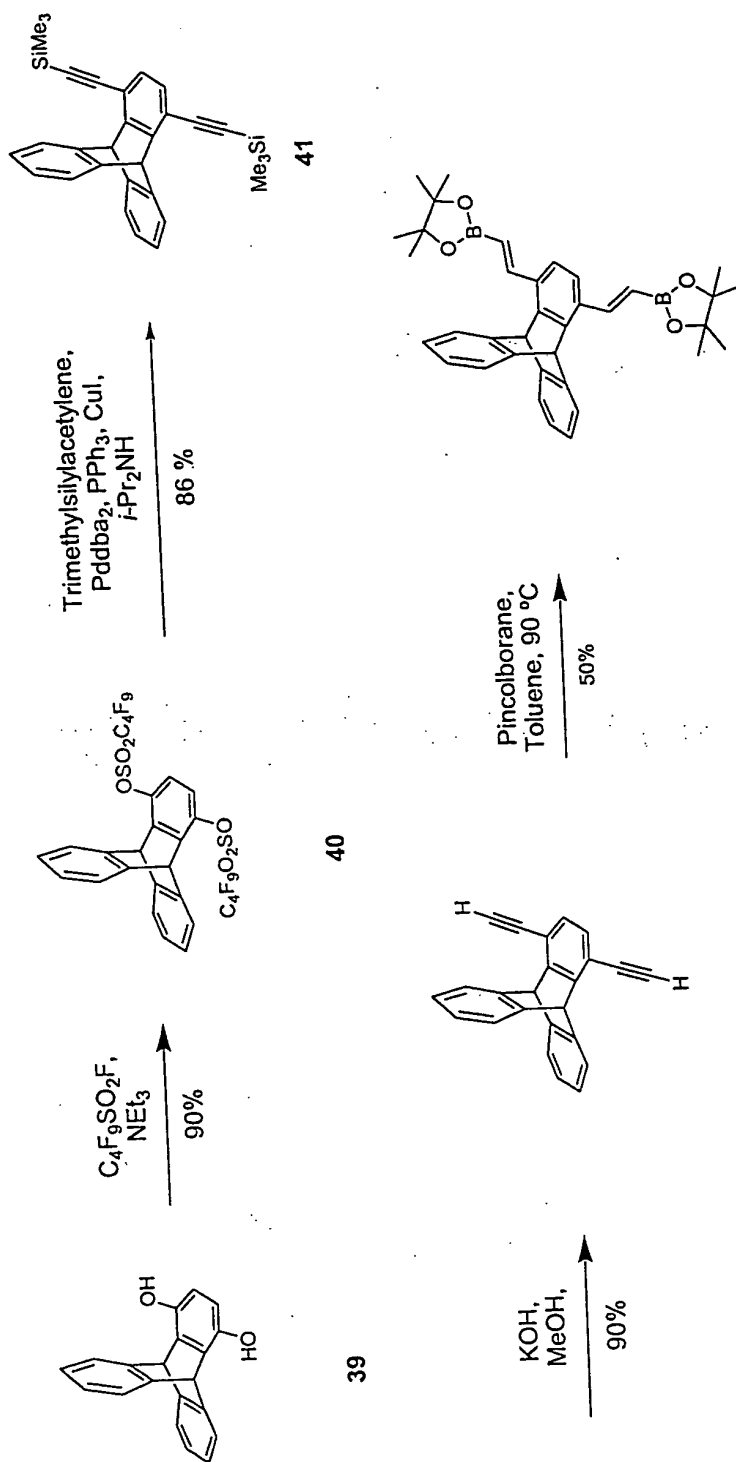
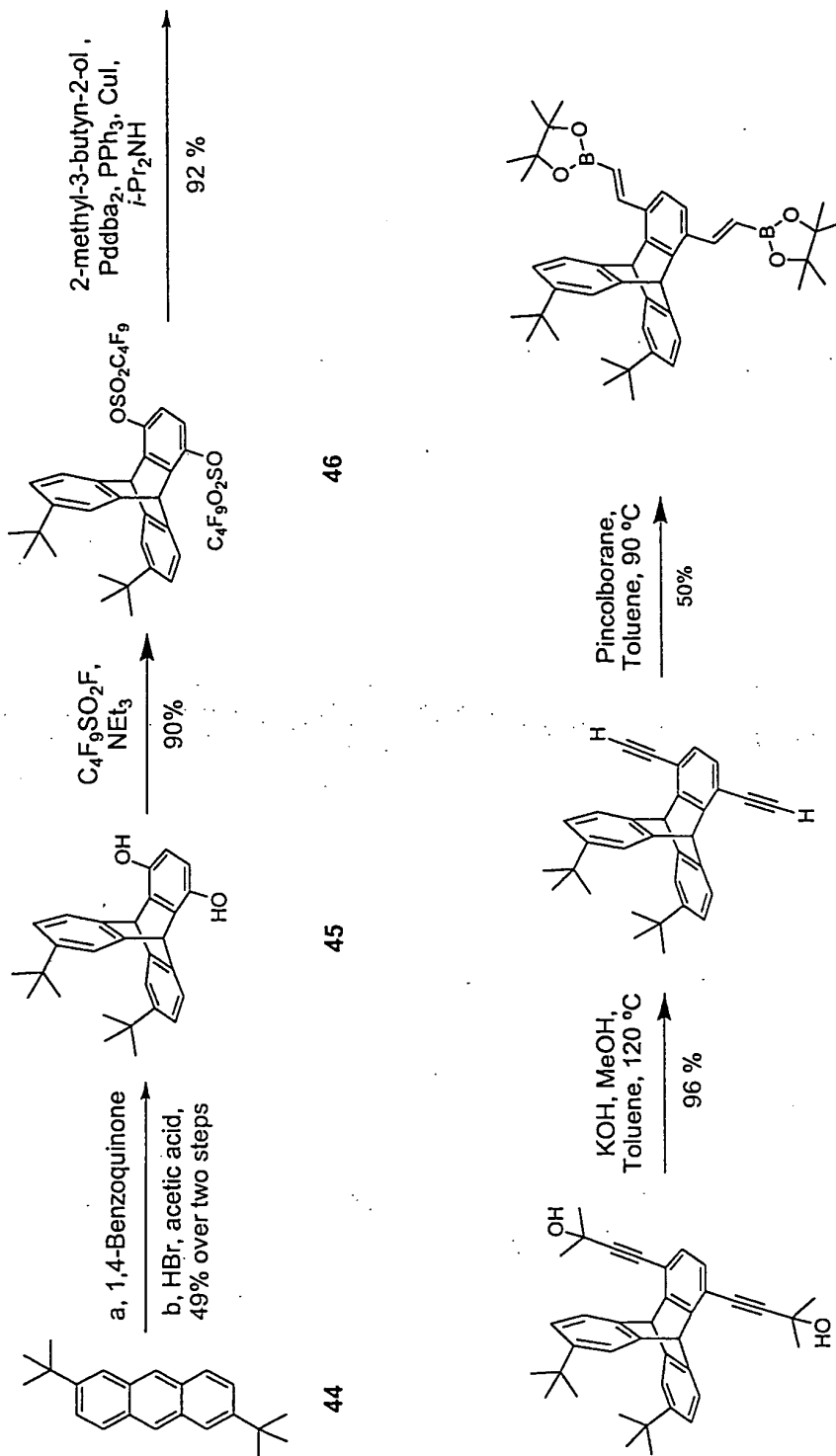


Fig. 9F



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Fig. 96

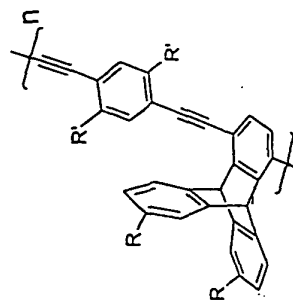
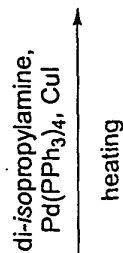
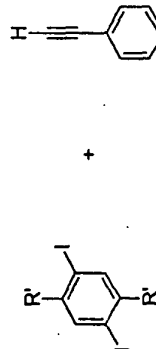
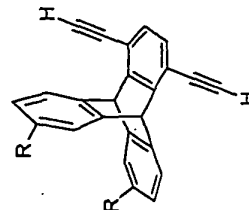
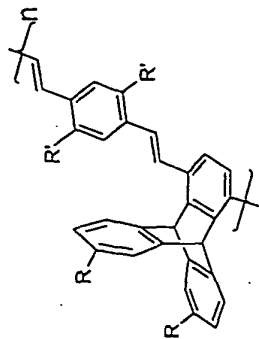
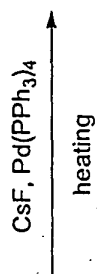
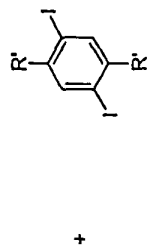
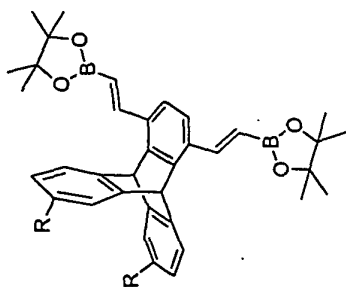
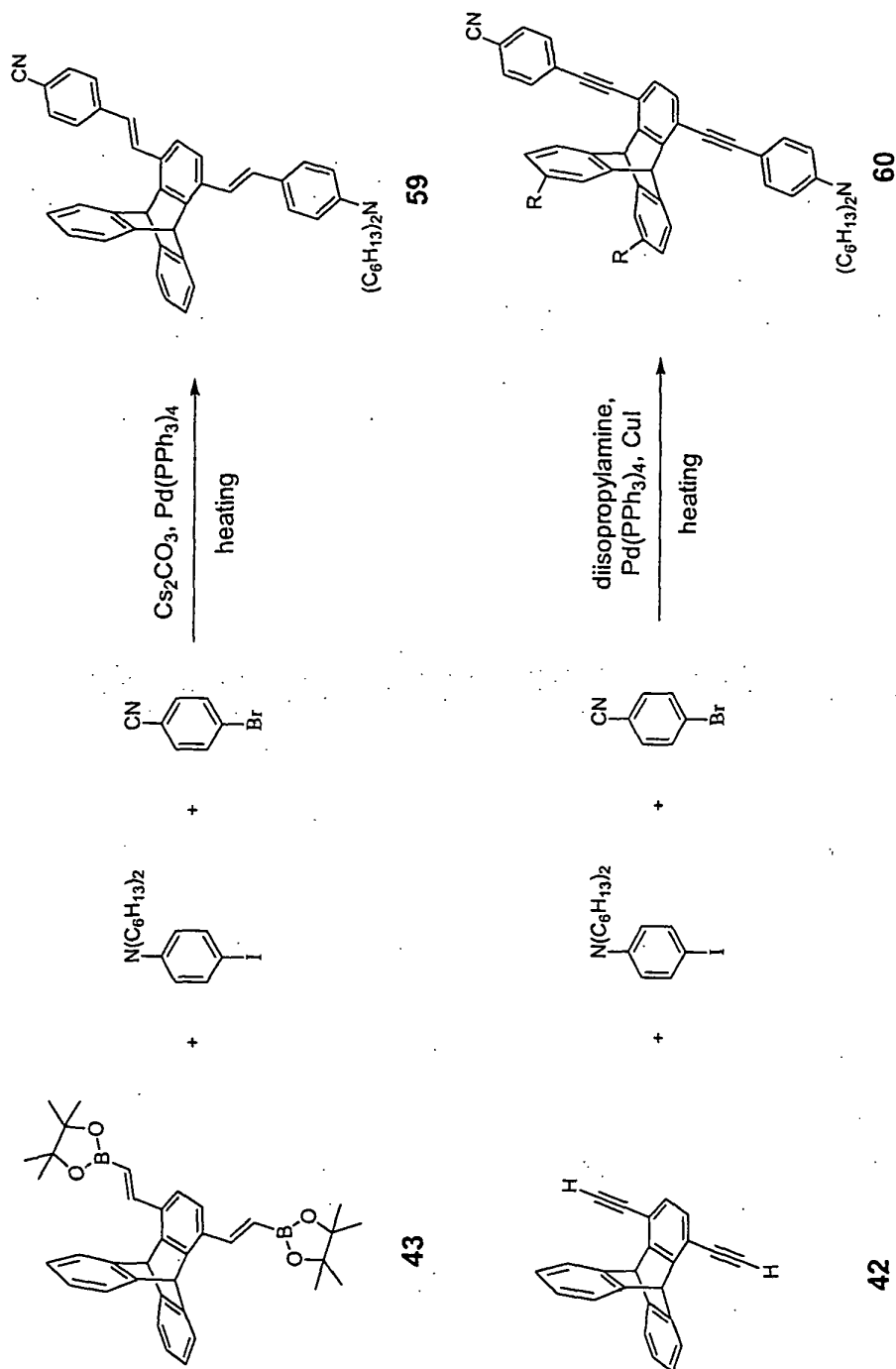


Fig. 9H



206220" 0905E660

Figure 10

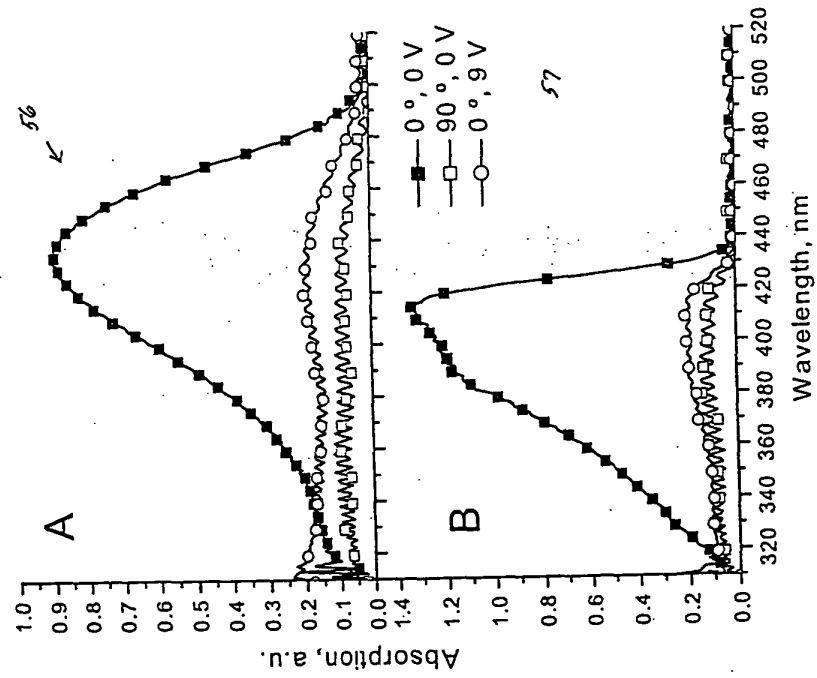


Figure 11

